

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application:

Listing of Claims:

Claims 1-6 (canceled)

7. (currently amended) A system for diagnosing EGR valve-related failure conditions, comprising:

an EGR valve having a valve inlet in fluid communications with an exhaust manifold of an internal combustion engine and a valve outlet in fluid communications with an intake manifold of said engine, said EGR valve responsive to a valve command to control exhaust gas flow therethrough;

~~means for determining a position of said EGR valve and producing an~~ EGR valve position sensor producing an EGR valve position signal corresponding thereto indicative of EGR valve position; and

an engine controller producing said valve command, said engine controller ~~responsive to said EGR valve position signal and said valve command to determine when said valve command corresponds to commanding said EGR valve from one of a fully closed and a fully open position thereof to one of a fully open and a fully closed position thereof, said controller thereafter~~ responsive to said valve position signal to determine a final valve position after a time delay following said valve command commanding said EGR valve from one of a fully closed and a fully open position to one

of a fully open and a fully closed position, said engine controller logging an EGR valve response time fault if a difference between said final valve position and an expected valve position is greater than a position threshold.

8. (Original) The system of claim 7 wherein said controller is configured to measure a voltage associated with said EGR valve sensor if said difference is less than said position threshold, said controller logging an EGR valve position sensor in-range fault condition if said voltage is one of greater than a fully open sensor voltage threshold and less than a fully closed sensor voltage threshold.

9. (Original) The system of claim 8 wherein said controller is configured to log an EGR valve position sensor in-range high fault if said voltage is greater than said fully closed voltage threshold when said valve command corresponds to commanding said EGR valve from said fully open to said fully closed position.

10. (Original) The system of claim 9 wherein said controller is configured to log an EGR valve position sensor in-range low fault if said voltage is less than said fully open voltage threshold when said valve command corresponds to commanding said EGR valve from said fully closed to said fully open position.

11. (currently amended) The system of claim 7 further including a vehicle battery connected to said EGR valve position sensor, said controller logging said fault only if a voltage of said battery is within a predefined voltage range.

12. (Original) The system of claim 7 further including:

means for determining an operating temperature of said engine and producing an engine temperature signal corresponding thereto; and

means for determining ambient temperature and producing an ambient temperature signal corresponding thereto, said controller logging said fault only if said engine temperature and said ambient temperature are both below a temperature threshold.

13. (currently amended) A method of diagnosing EGR valve-related failure conditions comprising the steps of:

monitoring a valve position of an EGR valve disposed between an exhaust manifold and an intake manifold of an internal combustion engine;

monitoring an EGR valve command;

~~determining from said valve position and said valve command when said valve command corresponds to commanding said EGR valve from one of a fully open and a fully closed position to one of a fully closed and a fully open position;~~

determining a final valve position after a time delay following said valve command corresponding to commanding said EGR valve from said one of said a fully open and said a fully closed position to said one of said a fully closed to said a fully open position;

logging an EGR valve response time fault if a difference between said final valve position and an expected valve position is greater than a position threshold.

14. (Original) The method of claim 13 wherein said response time when said valve command corresponds to commanding said EGR valve from said fully open position to said fully closed position is less than said response time when said valve command corresponds to commanding said EGR valve from said fully closed position to said fully open position.

15. (Original) The method of claim 13 further including the steps of:
measuring a voltage associated with a sensor sensing said valve position if said response time is below said response time limit; and
logging an EGR valve position sensor in-range fault condition if said voltage is one of greater than a fully open sensor voltage threshold and less than a fully closed sensor voltage threshold.

16. (Original) The method of claim 15 wherein the step of logging an EGR valve position sensor in-range fault condition includes logging an EGR valve position sensor in-range high fault if said voltage is greater than said fully closed voltage threshold when said valve command corresponds to commanding said EGR valve from said fully open to said fully closed position.

17. (Original) The system of claim 15 wherein the step of logging an EGR valve position sensor in-range fault condition includes logging an EGR valve position sensor in-range low fault if said voltage is less than said fully open voltage threshold when said

valve command corresponds to commanding said EGR valve from said fully closed to said fully open position.

Claims 18 - 26 (canceled)